

ever, has been shown by the fact that in a case reported by myself in the *Journal A. M. A.*, April 11, 1903, the parasite was of the American variety, yet the host had contracted the disease in the Philippines. Capps also reported the case of a man suffering from the presence of the European worm, who contracted the disease in Panama.

The treatment of the condition is with large doses of thymol. It has not been uniformly satisfactory, many of these patients returning months afterwards and showing the presence of ova in their stools. We should be careful to keep these patients under observation for as long a period as possible, examining their stools daily for the presence of ova.

More precautions should be taken to prevent the entrance of those suffering from this condition into our ports, and this can only be done by a rigid quarantine of all suspicious persons, and thorough examinations by competent men. They should only be allowed to land after repeated examinations of the stools had demonstrated the absence of ova.

- (1) Stone, *Medical News*, N. Y., April, 1903.
- (2) Stiles, Bull. No. 10 Hyg. Lab., U. S. Pub. Health and Marine Hosp. Service, Washington.
- (3) Smith, *Am. Journal Med. Sciences*, Nov., 1903.
- (4) *Boston Medical and Surgical Journal*, May, 1903.
- (5) *A. M. A. Journal*, April 11, 1903.
- (6) CALIFORNIA STATE JOURNAL OF MEDICINE, April 1905.
- (7) Manson, *British Medical Journal*, Dec. 20, 1904.
- (8) Ashford, *N. Y. Medical Record*, Nov. 7, 1903.
- (9) Ashford, *American Medicine*, Sept., 1903.

## ADOLESCENCE IN GIRLS.\*

By F. R. BURNHAM, M. D., San Diego.

THE two periods of greatest danger in a woman's life are puberty and the menopause. Of these, the former is the more important, as it heralds the dawn of womanhood; and further, if puberty be safely passed, the menopause is quite likely to be the same, for storms or calm at puberty indicate what the change of life will be. Woman is the best exponent of the nation, indicative of its growth, prosperity or decadence. This is particularly true of the American woman of to-day, because of the freedom she is given, and the enthusiasm with which she enters into the complex activities of our strenuous life. Will she succeed? After a grand struggle she has won the best; the future will decide what she will select. The great victory she has won will be fruitless, unless the physician, the home and the school wisely unite their efforts to guide the adolescent girl through the intricate maze of dangers that beset her pathway to mature womanhood. In this struggle woman will only succeed when she recognizes that adolescence is a sacred time of "reverent exemption from the hard struggle of existence in the world and mental effort in the schools"; that intersexual differences exist and must be observed by frequent periods of rest; that woman can accomplish more in 25 than in 28 days.

Up to the eighth grade in our public schools we find our girls mostly healthy, with rosy cheeks, laughing eyes and strong muscles, joining the boys in their games, running about with as much freedom as the wild fawn on the mountain side. But from this time a change takes place in a large number of our girls. They lose their rosy cheeks, become pale, anemic, chlorotic, listless and take no active interest in athletic sports of any kind. Up to the age of puberty girls and boys are alike, and with like treatment like results will be obtained. At this age, however, a distinct physical change takes place in the girl; her bust fills out, her hips broaden and there is a general fullness and rotundity of the whole body. With this change a new factor enters into the girl's life that is to dominate it until the menopause takes place. A change that makes a distinct difference between girls and boys, more insistent up to the age of 20, but always present, and exerting a marked influence upon woman's activities until the fruitful age is past.

Christopher Martin well says: "A remarkable transformation in the psychic, emotional and mental life takes place in a girl at the age of puberty." Why this change? The hitherto dormant function of reproduction asserts itself, giving rise to new conditions and new dangers. If a girl is in good health, menstruation should appear without distress of any kind; if rationally treated, it will readily harmonize with the other functions of the body. If the girl has been properly instructed, she will recognize that the fullness of womanhood has begun to dawn. If ignorantly ignored, or if, as many of our modern women seem to think, they can crush it out and thereby put themselves on the same physical footing as men, the results will be disastrous. Puberty means scarcely more than a change of voice to most boys; they go on without interruption increasing in strength and endurance; but the girl's endurance remains at about the same level from 14 to 20 years. Hereafter a new standard must be made for the girl.

G. Stanly Hall says we "should respect the law of sexual differences, and play the part harmoniously in the great sex symphony by stepping aside for frequent periods of rest." Nature, from this time on until the twentieth year, seems to devote all of her surplus energies to the perfect development of reproductive organs, and woman's capacity, both mental and physical, is largely measured by the healthy performance of this function. The great, all-pervading object of nature is the reproduction of her species; this is evident on every hand, both in the animal and the vegetable kingdoms. In the human species it surrounds the reproductive function with every safeguard, not only in monthly ovulation, but by subordinating all of the higher functions of the body to this one, that failure to reproduce shall be impossible. During adolescence nature every 4 weeks, for at least 1, turns all of her energies, except what is necessary for mere existence, to the one duty of perfecting the growth of the reproductive organs. If we attempt to thwart nature my directing all of the girl's energies to her brain, there will inevitably be a clash of forces, with great danger of ultimately wrecking the whole system.

Wherever there is increased function, increased blood is demanded. If we direct blood to the brain that should go to the reproductive organs, we rob them, and proper development is retarded or stopped. Dr. Carstons says: "With advancing civilization, and the work thrown on the brain at puberty by the intellectual requirements of the day, we have found that many young girls at the age of puberty, on account of the studies they have, remain physically defective. It is too much work for nature. The body may even develop, but nutrition is all used up in supplying the brain with the necessary nourishment, the pelvic organs are neglected and the result is an infantile uterus, while menstruation is often painful and scanty; all emmenagogue remedies usually recommended are absolutely of no use. By stopping all studies, putting the girl in the fresh air and letting her live a normal life, with plenty of exercise, development of the uterus may still take place if this is done in time. If this is neglected until she is through with her school and college life, that is, until she is 18 or 20, the poorly developed uterus will generally remain. It is a matter of experience and observation that excessive mental exertion of whatever kind during the developing period interferes with healthy, normal growth.

Further, during youth, when accelerated growth is going on in the whole system, there is diminished resistance to fatigue. This is significantly true of girls. Now we have the problem before us. At the age of 13 or 14, when the special functional life is attempting to establish itself, and when for a time a large amount of blood must be diverted to the pelvic organs, our school girl passes from the grammar to the high school. Her intellectual work is decidedly increased and various forms of dissipation

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are begun, of which school fraternities are the worst, for they result in shortened hours of sleep, late, indigestible suppers, dancing, etc., all of which tend to unsettle the nervous system. Now what is the result of this increased mental work and dissipation? Simply a physiological fact that much more blood is diverted to the brain because of increased function, the reproductive system is robbed and failure of normal development follows. No matter how heavy the work or short the hours of sleep, the girl's active intellect and conscientiousness (developed at this age) drive her on in spite of backache, headache and every other form of physical suffering, to carry to a brilliant finish much more work than her boy competitor; but the results are left behind to manifest themselves later.

Dr. Mary Riter of Berkeley says "that after years of study of the girls in our State University, she finds that 26% have headaches, 29% constipation, 67% menstrual disorders." She also says most of these ills are sown in early girlhood, from which the harvest of semi-invalidism is reaped in mature womanhood. The question is often asked, Why do we have so much more sickness in girls than boys after the eighth grade? It is largely from our misconception that girls and boys are physically alike and can be treated the same. It is the failure to recognize the fact that the period of developing womanhood is one of great nervous and vascular excitement when the system is in a state of unusual activity and susceptibility during the incomplete establishment of the menstrual function. For a short time before the beginning of the menstrual flow the system is wrought up to a high pitch of nervous tension, to be followed in a few days by a corresponding depression.

There is no recognition of the physical differences between girls and boys in our present co-educational methods. Girls and boys alike are expected to do identical work in the same time and with the same instructors (for this is co-education). The girl is too conscientious to slight her work and too proud to lose her place in the class, so she conceals her physical suffering, and, like a horse under whip and spur, goes through it with probable collapse following, and with injury to the reproductive and nervous system that may require years of medical attention to remedy. It is atrocious to require a young girl during the physical and mental depression that follows menstruation to take a competitive examination; and yet it is being done every day. The present methods of treatment of girls in public schools are not defended by any one in the community. Teachers are distressed by conditions they have to meet. Parents are dissatisfied and even angry with the effects of the public school system upon girls. Is it not high time for the medical profession to take a firm stand and insist upon the necessary reforms?

The home needs reforming as well as the school; co-operation is absolutely necessary for the best results. In the first place, teach parents the necessity of proper hygiene in the home. Fresh, pure air night and day; long hours of quiet sleep, with plenty of good, plain food at regular hours. The home, and not the street or the assembly hall, is the place for girls, with rare exceptions, up to 18 years of age. The mother should give her daughter full knowledge of what menstruation is and what it means, and the care that it is necessary to exercise to maintain good health; also the dangers of improper relations of the sexes. The clothing should not constrict the chest or waist, nor put undue weight upon the pelvis. I think all agree that co-education as now practiced is a serious injury to a large percentage of our girls and women. Dr. Celia Mosher says: "We must reluctantly conclude that it is not yet proven that the higher education of women is not injurious to their health." I also think that those who have looked into the subject will concur with me that most of the injury is done in the preparatory school.

As Hall says, after the ferment of puberty has

spent itself and under wise treatment the menstrual function has become normally established, the college work can be done without injury. But co-education is with us, and it will stay. What can we do to prevent its injurious effects and get the best results? It is my personal opinion that the sexes should be separated from the 8th grade through the preparatory course, to be brought together during the college work. It is during this period, when the girl's functional life is being established, that she should have certain privileges and immunities, without embarrassment of the presence of the opposite sex. This, however, is impractical at present from an economical standpoint.

What are its worst features? (1.) Too many hours in overcrowded, badly ventilated schoolrooms. Final examinations. Identical courses. Identical diplomas. The credit system which includes competitive examinations. Lack of proper physical exercise. The majority of our girls should take from 5 to 7 years to complete the high school course. They should not attend school more than one session daily. During menstruation they should not be required to give recitations, and if the function is not normal should not attend school at all for 2 or 3 days. They should be given proper physical exercise every day, and not in the schoolroom between desks, but in a gymnasium, or in this climate in the open air.

Final examinations are the most infernal and unnecessary inventions continued from a barbarous past to persecute our girls. No good reason can be given for their use. Girls have been known to lose 3½ pounds during one of these examinations. Some one has well said: "There is no time or place for organic repentance provided by nature for the sins of the schoolmaster."

Identical courses is a bit of prejudice left over from the struggle for equal education of sexes; it should be eliminated at once. Our course of study in the high school should be elective, with equivalent studies. There are certain studies that each sex excels in, and these should be the majors. Diplomas should be granted on credits, as some of our universities are now doing. The marking in weekly or monthly examinations by which credits are obtained should be changed to simply passed or failed. The constant struggle to get the *one-mark* on the part of many of our girls is very injurious at this time in their lives. I cannot close this paper without an earnest appeal to the members of this society and the entire profession of this state to take a personal interest in our public school work. The public, as a whole, know nothing about how their children are being educated. Our teachers are a body of able, conscientious men and women, trying to do their best under incompetent supervision. Our boards of education are mostly the end product of the political machine. Our superintendents, with rare exceptions, are either ignorant or forget their sacred trust in their mad rush for political pelf.

#### DISCUSSION.

Dr. Charlotte J. Baker, San Diego.—The importance of this subject cannot be overestimated, and it deserves the careful consideration of every physician. While I agree with Dr. Burnham in the main, there are one or two points in which I differ. He says that puberty in the boy means scarcely more than the change of voice. While not showing as marked physiological changes as in the girl, I feel that it is as important a time for him; the changes in his whole nature, moral, intellectual and physical, are great, and demand the instruction which only a good physician can give. The so-called "necktie age" means much in the future life of the body. As for the education of the girl, which Dr. Burnham seems to think possibly should be different from that of the boy, I think that education is a matter of the individual and not of sex, the boy often inheriting the mother's tastes and mental capacity, and the girl the father's. The age at which girls should be carefully watched,

as regards overdoing, begins not at the 8th grade, but in many cases at the 6th, and long before that time she should be well informed as to the development of her body, especially of the reproductive organs. This the wise physician can counsel and advise the mother to do.

Dr. Ray L. Wilbur, Stanford.—It seems to me there is one simple thing that we can do in the cases that come to our attention, even though we are not able as yet to provide a sane education for our young girls. That is, to remove from the classroom every young girl who shows at the beginning of her menstrual life mental or physical strain. She can be kept out a year or two and given proper physical exercise and rest at home until her condition becomes more stable. This should be urged upon ambitious parents who thoughtlessly are willing to sacrifice the future of their children rather than have them fall behind their neighbors in the mad race for knowledge.

### A PRACTICAL METHOD FOR THE DETERMINATION OF THE DEFECTS OF THE SPECIAL SENSES IN SCHOOL CHILDREN, WITH A REPORT OF THREE THOUSAND SEVEN HUNDRED AND EIGHTY EXAMINATIONS.

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**B**EFORE entering in detail upon the findings of the inspection of eye, ear, nose and throat defects among the children in the public schools, it would be well to give, in a way, the method pursued.

The inspection of school children in regard to defects of the special senses, only follows in line with the present rapid progress in medical science and hygiene, and has been taken up and carried to useful ends in other large cities, such as Chicago, Philadelphia, New York and Boston.

A practical method of examination is in the experimental stage, and each of the cities that I have mentioned is pursuing the work on somewhat different lines, though all with the same high aim and scientific enthusiasm. After carefully reviewing the systems as practiced in other large centers, I adopted what I thought best for our needs, and added a number of new features which, to my mind, would facilitate this work and render the records of future value to the pupil, and of scientific interest.

One word more to justify these elaborate preparations for apparently so simple a procedure. Firstly, be it remembered that eyes were never created for the purpose to which we largely put them. The Lord never intended that we should look long and fast at small objects, barely a sixteenth of an inch in diameter, such as our usual printing type. When one considers that the little child is compelled, through the exigencies of our present form of education to use his eyes for this unnatural purpose, for from 6 to 10 hours a day, is it a wonder that small defects become great ones, and that certain diseases, such as myopia, are on the increase in alarming proportions? In the high school it was manifest in 22% of the girls examined, and in 14% of boys. These figures can be appreciated when we compare them to this defect as rated among illiterate and savage people. It is rarely seen in the peasant classes of Europe, and practically unknown among the Nubians, Laplanders and Patagonians.

The examination of the pupils can hardly be placed in the hands of the teacher, who has neither the time nor the knowledge; again it could scarcely be expected of the inspecting oculist to enquire personally into the condition of each pupil, only to find here and there a case requiring his special care. So I adopted a plan between these two extremes, that of placing in the hands of the teacher 13 simple but pointed questions to be asked each pupil, and if any one were

answered in the negative, this pupil should be referred to the inspecting oculist, who would, if necessary, notify the parent through regularly printed blanks.

A large test card of various-sized letters is given each teacher, with a number indicating each size of letter, which represents at what number of feet that line should be read by a normal eye, i. e., if the 40-foot line is read at 20 feet (the distance at which the card is placed) the vision is noted down as 40, and the oculist understands it as 20-40 or  $\frac{1}{2}$  vision.

Test Card.

<b>E</b>	200
<b>T B</b>	100
<b>DLN</b>	70
<b>PTER</b>	50
<b>PZBDE</b>	40
<b>OELZTG</b>	30
<b>LXORFDZ</b>	20

Fig 1.

A record blank is also given each teacher, on which each pupil's name is written, and a line following to record the answers to each of the questions.

The questions to be asked by the teacher are the following: Name, age, sex.

#### Eye.

1. Does the pupil fail to read the 20-foot line? If so, what is the lowest line that can be read by the RIGHT EYE?
2. Does the pupil fail to read the 20-foot line? If so, what is the lowest line that can be read by the LEFT EYE?
3. Does the print suddenly become blurred, and do the eyes habitually grow weary after study?
4. Does the pupil habitually suffer from headaches?
5. Does it seem as if the pupil had crossed or diverging eyes?
6. Does the pupil suffer from inflamed or crusted lids?

#### Ear.

1. Does the pupil complain of earache in either ear?
2. Do the ears run, i. e., does matter or a foul odor proceed from either ear?
3. Does the pupil fail to hear an ordinary voice at 20 feet with either ear?

#### Nose and Throat.

1. Is the pupil frequently subject to "colds in the head," discharge from the nose or "dripping in the back of the throat"?
2. Is the pupil an habitual mouth breather?

#### Special.

1. Is the pupil's general standing in the class excellent, good, fair or poor?
2. Does the pupil wear glasses?

The general directions printed upon the back of this record blank are as follows:

Do not expose the test card of letters except when in use, as familiarity with its face leads children to learn the letters "by heart."

First grade children need not be examined.

The examination should be made privately and singly.

Children already wearing glasses should be tested with such glasses properly adjusted on the face.

Place the test card of letters on the wall in a good light; do not allow the face of the card to be covered with glass.

Place the pupil twenty feet from the test card of letters.

Each eye should be examined separately.